

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A vehicle steering system comprising:
a steering mechanism including an input section, and a steering section which is mechanically separated from the input section, and arranged to steer a vehicle in accordance with a steering input quantity of the input section;
an actuating section to impart an actual torque to the steering mechanism, the actuating section including a plurality of drive units to produce the actual torque; and
a controlling section to control the actuating section to achieve a target torque with the drive units, the controlling section including a plurality of control units ~~to control one of which serves as a representative unit calculating a common torque share from the target torque, and all of which control~~ the drive units, respectively, in accordance with [[a]] the common torque share calculated by one of the control units the representative unit.
2. (Original) The vehicle steering system as claimed in Claim 1, wherein the control units are connected with one another by a communication line, and arranged to exchange information on the common torque share calculated by one of the control units.
3. (Original) The vehicle steering system as claimed in Claim 1, wherein each of the control units is configured to select a role between a representative unit for calculating the common torque share and transmitting the common torque share, and a non-representative unit for receiving the common torque share from the representative unit.
4. (Original) The vehicle steering system as claimed in Claim 3, wherein each of the control units is configured to detect an operating condition in the unit, to send information on the operating condition through the communication line, and to determine the role between the representative unit and the non-representative unit, in accordance with the operating conditions of the control units.

5. (Original) The vehicle steering system as claimed in Claim 4, wherein each of the control units is configured to detect an abnormal state in the unit, to send information on the abnormal state through the communication line, and to determine the role between the representative unit and the non-representative unit, in accordance with a predetermined order of priority among the control units, excluding one or more control units, if any, which are in the abnormal state.

6. (Currently Amended) ~~[[The]]~~ A vehicle steering system as claimed in Claim 5, comprising:

a steering mechanism including an input section, and a steering section which is mechanically separated from the input section, and arranged to steer a vehicle in accordance with a steering input quantity of the input section;

an actuating section to impart an actual torque to the steering mechanism, the actuating section including a plurality of drive units to produce the actual torque; and

a controlling section to control the actuating section to achieve a target torque with the drive units, the controlling section including a plurality of control units to control the drive units, respectively, in accordance with a common torque share calculated by one of the control units,

wherein each of the control units is configured to select a role between a representative unit for calculating the common torque share and transmitting the common torque share, and a non-representative unit for receiving the common torque share from the representative unit,

wherein each of the control units is configured to detect an operating condition in the unit, to send information on the operating condition through the communication line, and to determine the role between the representative unit and the non-representative unit, in accordance with the operating conditions of the control units,

wherein each of the control units is configured to detect an abnormal state in the unit, to send information on the abnormal state through the communication line, and to determine the role between the representative unit and the non-representative unit, in accordance with a predetermined order of priority among the control units, excluding one or more control units, if any, which are in the abnormal state, and

wherein each of the control units, when serving as the representative unit, calculates the common torque share in accordance with the number of control unit or control units which are not in the abnormal state.

7. (Original) The vehicle steering system as claimed in Claim 6, wherein each of the control units is configured to stop operation of the drive unit assigned to the control unit if the abnormal state is detected in the control unit.

8. (Currently Amended) ~~[[The]]~~ A vehicle steering system as claimed in Claim 3,
comprising:

a steering mechanism including an input section, and a steering section which is mechanically separated from the input section, and arranged to steer a vehicle in accordance with a steering input quantity of the input section;

an actuating section to impart an actual torque to the steering mechanism, the actuating section including a plurality of drive units to produce the actual torque; and

a controlling section to control the actuating section to achieve a target torque with the drive units, the controlling section including a plurality of control units to control the drive units, respectively, in accordance with a common torque share calculated by one of the control units,

wherein each of the control units is configured to select a role between a representative unit for calculating the common torque share and transmitting the common torque share, and a non-representative unit for receiving the common torque share from the representative unit, and

wherein each of the control units comprises an operating condition sensor to sense an operating quantity of the steering mechanism, and each control unit, when serving as the representative unit, calculates the common torque share in accordance with the operating quantity sensed by the operating condition sensor within the control unit.

9. (Original) The vehicle steering system as claimed in Claim 8, wherein each of the control units is configured to calculate a control command quantity in accordance with the operating condition sensed by the operating condition sensor within the control unit and

further to calculate the common torque share in accordance with the control command quantity when the control unit is to serve as the representative unit; and each of the control units is configured to calculate the control command quantity even when the control unit is to serve as the non-representative unit.

10. (Original) The vehicle steering system as claimed in Claim 9, wherein each of the control units is configured to calculate the control command quantity in accordance with the target torque and the operating quantity sensed by the operating quantity sensor within the control unit when the control unit is to serve as the representative unit; and each of the control units is configured to calculate the control command quantity in accordance with the target torque and the operating quantity sensed by the operating quantity sensor of the representative unit and sent from the representative unit when the control unit is to serve as the non-representative unit.

11. (Original) The vehicle steering system as claimed in Claim 9, wherein each of the control units, when serving as the representative unit, determines the common torque share by dividing the control command quantity by the number of the control units which are not in the abnormal state.

12. (Original) The vehicle steering system as claimed in Claim 1, wherein the actuating section is provided for the steering section, and arranged to impart the actual torque to the steering section.

13. (Withdrawn) The vehicle steering system as claimed in Claim 1, wherein the input section includes a reaction producing mechanism; and the actuating section is provided for the reaction producing mechanism of the input section, and arranged to impart the actual torque to the reaction producing mechanism.

14. (Currently Amended) The vehicle steering system as claimed in Claim 1, wherein the controlling section comprises an upper controller section ~~to determine the target torque which~~ determines a target steering angle in accordance with a vehicle operating condition, and the

representative unit calculates the target torque in accordance with the target steering angle determined by the upper controller section and a sensed actual steering angle.

15. (Withdrawn) A vehicle steering control process for controlling each of steering torques produced with drive units, to achieve a target torque in response to a steering input quantity, the vehicle steering control process comprising:

calculating a common torque share when an assigned role is to serve as a representative unit;

receiving the common torque share when the assigned role is to serve as a non-representative unit; and

controlling at least one of the steering torques in accordance with the common torque share.

16. (Currently Amended) A vehicle steering ~~control apparatus~~ system for controlling an actual torque for steering a vehicle with a plurality of subsystems to achieve a target torque in response to a driver's steering input quantity, the vehicle steering ~~control apparatus~~ system comprising:

means for selecting one of the subsystems as a representative unit, and leaving the remainder as a non-representative unit;

means for causing the representative unit to calculate a common torque share in accordance with the target torque;

means for causing the non-representative unit to receive the common torque share from the representative unit; and

means for producing the actual torque in response to the driver's steering input for steering the vehicle, by causing each unit to produce a torque in accordance with the common torque share.

17. (New) The vehicle steering system as claimed in Claim 1, wherein the control units use the common torque share in common, and produce equal torques with the drive units in accordance with the common torque share calculated by the representative unit.

18. (New) The vehicle steering system as claimed in Claim 1, wherein the steering mechanism includes a rack and pinion steering gear mechanism and the drive units are arranged to drive a pinion of the rack and pinion steering gear mechanism in cooperation.

19. (New) A control process for controlling a vehicle steering system including:

- a steering mechanism including an input section, and a steering section which is mechanically separated from the input section, and arranged to steer a vehicle in accordance with a steering input quantity of the input section;

- an actuating section to impart an actual torque to the steering mechanism, the actuating section including a plurality of drive units to produce the actual torque; and

- a controlling section to control the actuating section to achieve a target torque with the drive units, the controlling section including a plurality of control units to control the drive units, respectively;

- the control process comprises:

- selecting one of the control units as a representative unit;

- causing the representative unit to calculate a common torque share in accordance with a target torque; and

- producing the actual torque by causing all the control units to control the drive units, respectively in accordance with the common torque share calculated by the representative unit.